

## Sun Acq/GSACE Recovery Timeline

(All times are in GMT)

On 99-003 at 18:01:51, FDC 112 and 113 tripped which sent TRMM to GSACE B and Sun Acquisition Mode after the first burn (Delta-V #68) of a pair. During the maneuver, the arrays were stopped at an angle of 37°. Upon transition to ACS Normal mode, the Solar Arrays began to slew to a the new commanded position of 47°. By the time the arrays reached this commanded position, the new commanded position was 50° (the Solar Array Stops). At this point the commanded velocity dropped to 1 pps and ACS commanding to the Solar Arrays stopped. The Arrays were not at the commaneded position or within the 0.5° tolerance, so ACS assumed a GSACE failure, thereby switching to GSACE B.

TSM #16 monitors telemetry for transition into Sun Acquisition Mode and then takes the action of configuring the spacecraft to Low Power. This TSM was never reset since the last Sun Acquisition (98-115), so it never took an action. The instruments remained powered ON for 3 hours and 27 minutes while the Observatory was Sun Acquisition Mode. Finally a ground commmand was sent to power OFF the instruments.

Once the cause was found, the FOT determined it was safe to return to GSACE A and ACS Normal Mode. It was also decided to take out the +/-50° stops and replace them with the old stops (+/-130°). Finally the instruments was powered ON and returned to their normal science modes.

### **Day 99-003**

1. Start of Delta-V Burn #1 at 17:55:02  
End of Delta-V Burn #1 at 17:55:43
2. Returned to ACS Normal Mode at 17:59:08
3. ACS limits Solar Array Commanding at 17:59:51
4. FDC 112 (+Y Solar Array not in Commanded Position) reached first limit at 18:01:51  
FDC 113 (-Y Solar Array not in Commanded Position) reached first limit at 18:01:51  
FDC Action 36 taken as a result of FDC 112 & 113 - S/C RTS #20 started at 18:01:52  
Failover to GSACE B complete at 18:02:05  
ACS Entered Sun Acquisiton Mode at 18:02:05
5. TSM #16 (ACS Sun Acquisition Mode Monitor) tripped at 18:02:07  
No action taken due to TSM never being reset
6. FDC 110 (+Y Solar Array Software Stop Violation) reached its first limit at 18:02:12  
FDC 111 (-Y Solar Array Software Stop Violation) reached its first limit at 18:02:12  
FDC 116 (Solar Array POT Position Error) reached its first limit at 18:02:12
7. ACS ATS-A started Delta-V Burn #2 at 18:41:40  
Burn never done Sun Acquisition Mode to Delta-V Mode not allowed
8. Virtual Recorder 3 overflowed at 21:20:21

- Virtual Recorder 4 overflowed at 21:22:14
- Virtual Recorder 6 overflowed at 21:22:19
- Virtual Recorder 5 overflowed at 21:22:25
- 9. Disabled RTS #13 (SPRUCONFIG RTS) by ground command at 21:27:01
- 10. RTS #2 (Load Shedding RTS) activated by ground command at 21:28:05
  - Issued SH/LP pulse
  - Disabled PSIB NEB shutdown for SH and Low Power
  - Started RTS #13 (disabled)
  - Started RTS #15
  - Turned ON TMI Survival Heaters
- 11. Stopped S/C ATS-A by ground command at 21:29:26
- 12. RTS #15 (Non-Essential Relays Open) activated by RTS #2 at 21:29:40
  - TMI Powered OFF
  - LIS Powered OFF
  - PR Powered OFF
  - CERES Powered OFF (already OFF)
  - VIRS Powered OFF
  - RCS High Pressure Transducer Powered OFF
- 13. Virtual Recorder 1 overflowed at 21:48:58

## Events

<u>Start/Stop Time</u>	<u>Rate</u>	<u>Notes</u>
17:50:00-18:08:45	32/2048K	Scheduled Event - Lost Lock at 18:03:55 due to HGA not configured to GSACE B
18:39:00-19:06:00	1/1K	Added Event - Blind Acquisition
19:27:30-19:47:30	32/2048K	Scheduled Event - Lost Lock at 19:37:34 due to HGA not configured to GSACE B
20:26:00-21:02:00	1/4K	Added Event - Blind Acquisition
21:15:00-21:38:00	1/4K	Added Event - Blind Acquisition
21:55:30-22:05:30	32/2048K	Added Event - No Acquisition due to HGA not configured to GSACE B
22:08:00-22:40:00	1/4K	Added Event - Blind Acquisition
22:52:00-23:08:00	1/4K	Added Event - Blind Acquisition
23:34:30-00:10:00	1/4K	Added Event - Blind Acquisition